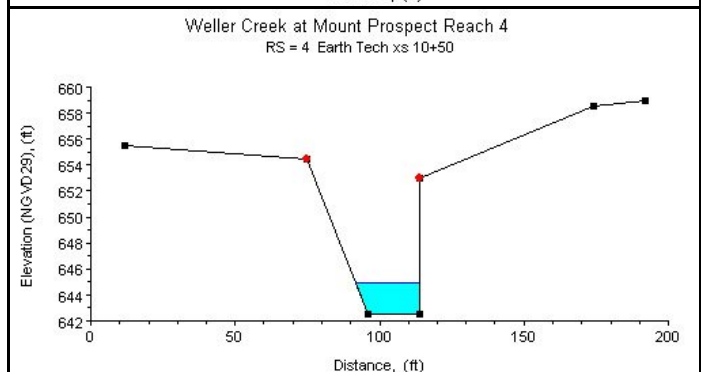
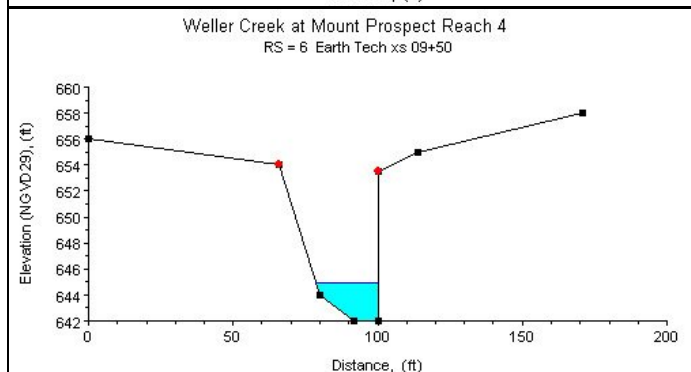
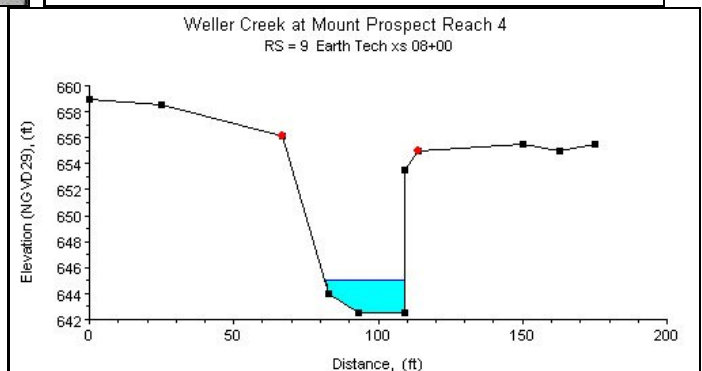
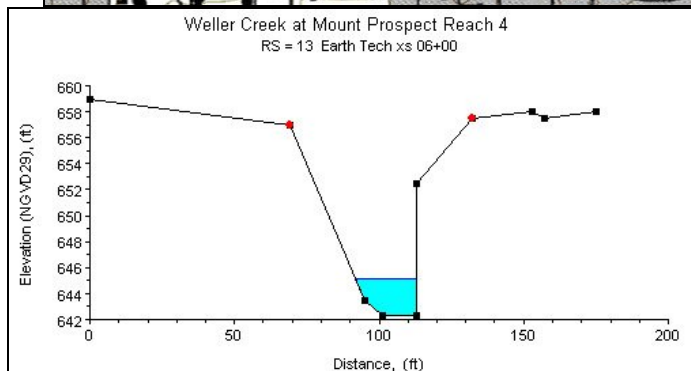
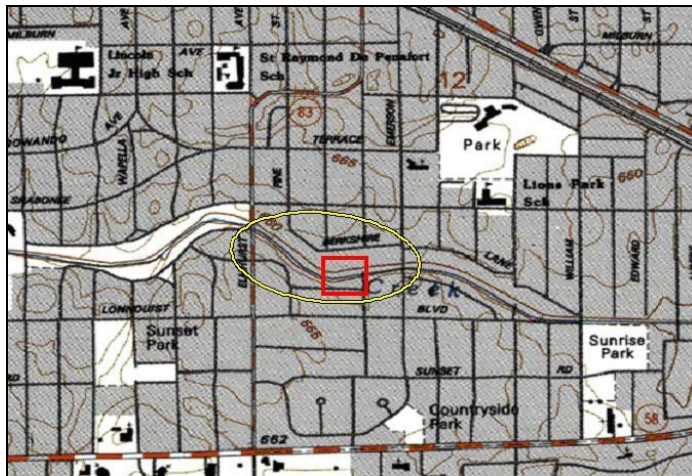


# Weller Creek at Emerson St at Mt Prospect, IL (Reach 4)



**Study Reach.**--The channel under consideration is constructed in an urban setting, located from the downstream side of the South Elmhurst Road bridge to the upstream side of the Emerson Street bridge, as shown in the quadrangle map on the top left. The study reach selected begins on the upstream side of the Main Street pedestrian footbridge and extends 700 ft upstream. Fifteen surveyed cross sections (surveyed by Earth Tech, in July 2001) are available for evaluating the longitudinal and cross-sectional characteristics in the study reach. The channel alignment, approximate variations in channel width and bank conditions, and locations of cross sections in the study reach are shown in the aerial photo on the top right. The general shapes of cross sections in the study reach are presented with four cross sections plotted above.

**Gage Location.**-- The location of discharge measurement is lat 42°03' 12", long 87°56' 06". This study reach is at NW1/4 SE1/4 SW1/4 sec.12, T.41N., R.11E., Cook County, Hydrologic Unit 07120004, on right bank 10 ft upstream from bridge on State Highway 58 (Golf Road) in Des Plaines, 2 mi west of US Highway 45 and at river mi 3.0. The

USGS streamgage-station number is 05529980.

**Drainage Area.**--12.04 sq mi.

**Gage Datum and Elevations of Reference Points.**--Datum of gage is 634.02 ft. Three reference points (RP-N) were established for the n-values project. All elevations are in NGVD 1929 convention. RP-N7 is two file marks on the streamward side on top of the steel sheer fence on the right bank about 40 ft downstream from Elmhurst Road bridge, elevation = 657.131 ft. RP-N6 is two file marks on the streamward side on top of the steel sheer fence on the left bank about 45 ft downstream from Elmhurst Road bridge (alternate tapedown reference point if stage is too low for PR-7), elevation = 653.221 ft. RP-N5 is a bolt in the concrete guardrail on the upstream side of Emerson Street bridge located about midchannel, elevation = 657.989 ft.

**Stage, Discharge Measurements, and Computed n-Values.**--Water-surface elevations were made by taping down from RP-N5 on the upstream side of Emerson Street bridge and from RP-N7 on the right bank about 40 ft downstream from Elmhurst Road bridge or from RP-N6 on the left bank about 45 ft downstream from Elmhurst Road Bridge. Discharge measurements are made using the conventional current-meter method. The computed n-values are listed in the following table. Whenever possible, the computed n-values are associated with a photo taken at the time of the measurement. The photos are arranged from low to high stage in order to illustrate contributing factors of n-values at a particular stage.

Date of Observation	Discharge (ft <sup>3</sup> /s)	Average Cross Section Area (ft <sup>2</sup> )	Hydraulic Radius (ft)	Mean Velocity (ft/s)	Slope	Coefficient of Roughness <i>n</i>
5/2/2006	8.8	27.8	1.18	0.36	0.001881	0.013
6/26/2006	52.0	44.6	1.72	1.25	0.001953	0.025
1/12/2005	81.5	54.9	2.01	1.58	0.001910	0.032
4/25/2007	82.3	52.5	1.95	1.67	0.001880	0.023
4/25/2007	83.6	54.1	2.00	1.64	0.001868	0.025
1/12/2005	87.5	56.3	2.05	1.65	0.001916	0.032







05529980 Weller Creek at Emerson St at Mt Prospect, IL (Reach 4)  
Looking Upstream from footbridge

06/03/03



05529980 Weller Creek at Emerson St at Mt Prospect, IL (Reach 4)  
Looking downstream from bridge

05/02/06



05529980 Weller Creek at Emerson St at Mt Prospect, IL (Reach 4)  
Looking upstream from footbridge

05/02/06



05529980 Weller Creek at Emerson St at Mt Prospect, IL (Reach 4)  
Looking downstream

06/26/06



05529980 Weller Creek at Emerson St at Mt Prospect, IL (Reach 4)  
Looking upstream

06/26/06

**Description of Channel.**--This channel is constructed. The streambed material consists of coarse sand and gravel in 12-inch monoslab pavers. Steel sheet piling lines both banks from the downstream side of Elmhurst bridge to about 300 ft downstream, after which the banks are short grass on the left-hand side (looking downstream) and sheet piling on the other. The study reach starts with this bank conditions; steel sheet pilings are on one side and grass on the other side of the bank. The study reach bends to the left about 500 ft downstream from Elmhurst Road. Overall cross sections are non-uniform in the study reach. Cross sections can be described as trapezoidal at the downstream end. The bottom width ranges from 15 to 25 ft. The top bank-width varies from approximately 70 ft at the upstream end to 35 ft downstream; and the bank heights are about 13 ft. Longitudinal bottom profile shows a riffle-pool structure in the study reach.

**Floods.**--Maximum discharge during period of record, 1,590 ft<sup>3</sup>/s on June 10, 1967, gage height, 15.09 ft.

**Estimated n-Values using Cowan s Approach.**--0.037 ~ 0.045